# **Do-it-yourself service precautions**

If you perform maintenance yourself, be sure to follow the correct procedure given in these sections.

ltems		Parts and tools
Battery condition	(→P. 302)	<ul><li>Warm water</li><li>Baking soda</li><li>Grease</li><li>Conventional wrench (for terminal clamp bolts)</li></ul>
Brake fluid level	(→P. 299)	<ul> <li>FMVSS No.116 DOT 3 or SAE J1703 brake fluid</li> <li>Rag or paper towel</li> <li>Funnel (used only for adding brake fluid)</li> </ul>
Engine coolant level	(→P. 298)	<ul> <li>"Toyota Super Long Life Coolant" or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite and non-borate coolant with long-life hybrid organic acid technology.</li> <li>For the U.S.A.:</li> <li>"Toyota Super Long Life Coolant" is pre-mixed with 50% coolant and 50% deionized water.</li> <li>For Canada:</li> <li>"Toyota Super Long Life Coolant" is pre-mixed with 55% coolant and 45% deionized water.</li> <li>Funnel (used only for adding engine coolant)</li> </ul>

ltems		Parts and tools
Engine oil level	(→P. 294)	<ul> <li>"Toyota Genuine Motor Oil" or equivalent</li> <li>Rag or paper towel, funnel (used only for adding engine oil)</li> </ul>
Fuses	(→P. 325)	• Fuse with same amperage rating as original
Headlight aim	(→P. 337)	Phillips-head screwdriver
Power steering fluid lev	el (→P. 301)	<ul> <li>Automatic transmission fluid DEXRON<sup>®</sup>II or III</li> <li>Rag or paper towel</li> <li>Clean funnel</li> </ul>
Radiator and condenser	(→P. 299)	_
Tire inflation pressure	(→P. 313)	<ul><li>Tire pressure gauge</li><li>Compressed air source</li></ul>
Washer fluid	(→P. 305)	<ul><li>Water washer fluid containing anti- freeze (for winter use)</li><li>Funnel</li></ul>

# **A** CAUTION

The engine compartment contains many mechanisms and fluids that may move suddenly, become hot, or become electrically energized. To avoid death or serious injury:

#### ■ When working on the engine compartment

- Keep hands, clothing, and tools away from the moving fan and engine drive belt.
- Be careful not to touch the engine, radiator, exhaust manifold, etc. right after driving as they may be hot. Oil and other fluids may also be hot.
- Do not leave anything that may burn easily, such as paper or rags, in the engine compartment.
- Do not smoke, cause sparks or expose an open flame to fuel or the battery. Fuel and battery fumes are flammable.
- Be extremely cautious when working on the battery. It contains poisonous and corrosive sulfuric acid.

#### ■ When working near the electric cooling fan or radiator grille

Be sure the ignition is off.

With the ignition on, the electric cooling fan may automatically start to run if the air conditioning is on and/or the coolant temperature is high.  $(\rightarrow P. 299)$ 

#### ■ Safety glasses

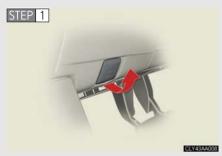
Wear safety glasses to prevent flying or falling material, fluid spray, etc. from getting in the eyes.

# **⚠** NOTICE

#### ■ If you remove the air cleaner:

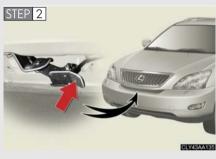
Driving with the air filter removed may cause excessive engine wear due to dirt in the air. Also a backfire could cause a fire in the engine compartment.

### Release the lock from the inside of the vehicle to open the hood.



Pull the hood release lever.

The hood will pop up slightly.



Lift the hood catch and lift the hood.

# **A** CAUTION

# ■ Pre-driving check

Check that the hood is fully closed and locked.

If the hood is not locked properly it may open while the vehicle is in motion and cause an accident, which may result in death or serious injury.

### 4-3. Do-it-yourself maintenance

# Positioning the jack

When raising your vehicle with the jack, position the jack correctly. Improper placement may damage your vehicle or cause injury.

► Front



► Rear (2WD models)



► Rear (4WD models)



# **A** CAUTION

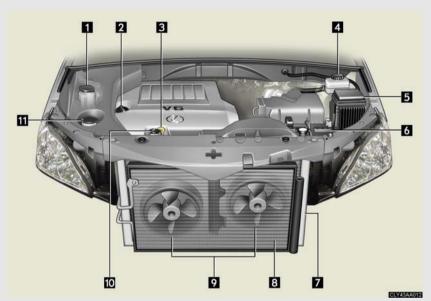
#### ■ When raising your vehicle:

Make sure to observe the following to reduce the possibility of death or serious injury.

- Do not put any part of your body or get underneath the vehicle supported only by the jack.
  - Always use automotive jack stands or a solid, level, surface.
- Do not start the engine while the vehicle is supported by the jack.
- Stop the vehicle on level firm ground, firmly set the parking brake and put the shift lever in P.
- Make sure to set the jack properly at the jack point.
   Raising the vehicle with an improperly positioned jack will damage the vehicle and may cause the vehicle to fall off the jack.
- Do not raise the vehicle while someone is in the vehicle.
- When raising the vehicle, do not place any objects on top of or underneath the jack.
- Vehicles with electronically modulated air suspension:
   Be sure to turn off the height control and stop the engine. Otherwise, the vehicle height may change in the automatic leveling function. (→P. 143)

# 4-3. Do-it-yourself maintenance

# **Engine compartment**



- Power steering fluid reservoir (→P. 301)
- 2 Engine oil filler cap
- (→P. 294)
- Engine oil level dipstick  $(\rightarrow P. 294)$
- Brake fluid reservoir

 $(\rightarrow P.299)$ 

**5** Fuse box  $(\rightarrow P. 325)$ 

- **6** Battery (→P. 302)
- **7** Radiator  $(\rightarrow P. 299)$
- **8** Condenser  $(\rightarrow P. 299)$
- 9 Electric cooling fans
- Engine coolant reservoir

 $(\to P.298)$ 

11 Washer fluid tank

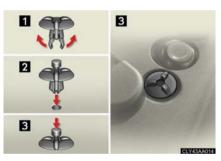
 $(\rightarrow P.305)$ 

# Engine compartment cover

■ Removing the engine compartment cover



■ Installing the clips



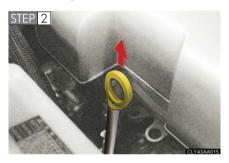
- 1 Open
- 2 Insert
- 3 Press

# Engine oil

With the engine at operating temperature and turned off, check the oil level on the dipstick.

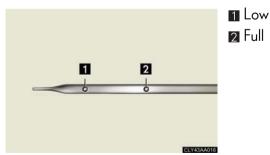
### Checking the engine oil

Park the vehicle on level ground. After turning off the engine, wait a few minutes for the oil to drain back into the bottom of the engine.



Hold a rag under the end and pull the dipstick out.

- STEP 3 Wipe the dipstick clean.
- STEP 4 Reinsert the dipstick fully.
- STEP 5 Holding a rag under the end, pull the dipstick out and check the oil level.
- STEP 6 Wipe the dipstick and reinsert it fully.



### Adding engine oil



If the oil level is below or near the low level mark, add engine oil of the same type as already in the engine.

Make sure to check the oil type and prepare the items needed before adding oil.

Oil grade	ILSAC multi-grade engine oil
ltems	Clean funnel

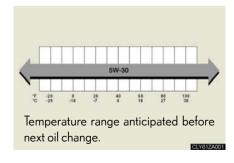
STEP 1 Remove the oil filler cap.

STEP 2 Add engine oil slowly, checking the dipstick.

STEP 3 Install the filler cap, turning it clockwise.

It takes about 1.6 qt. (1.5 L, 1.3 lmp. qt.) to raise the oil level from low to full on the dipstick.

### Recommended viscosity



SAE 5W-30 is the best choice for good fuel economy and good starting in cold weather.

If SAE 5W-30 is not available, SAE 10W-30 may be used. However, it should be replaced with SAE 5W-30 at the next oil change.

#### How to read oil container labels

Some oil containers are labeled with ILSAC certification marks that help you to select the proper oil.



#### ■ Engine oil consumption

- The amount of engine oil consumed depends on the oil viscosity, the quality of the oil and the way the vehicle is driven.
- More oil is consumed under driving conditions such as high speeds and frequent acceleration and deceleration.
- A new engine consumes more oil.
- When judging the amount of oil consumption, keep in mind that the oil may have become diluted, making it difficult to judge the true level accurately.
- Oil consumption: Max. 1.1 qt./600 miles, 0.9 lmp.qt./600 miles (1.0 L per 1000 km)
- If you consume more than 1.1 qt. (1.0 L, 0.9 lmp.qt.) every 600 miles (1000 km), contact your Lexus dealer.

#### ■ After changing the engine oil (U.S.A. only)

The oil change system should be reset. Perform the following procedures:

- STEP 1 Switch the display to the odometer.  $(\rightarrow P. 107)$
- STEP 2 Turn the ignition key to the LOCK position.
- While pressing the trip meter reset button, turn the ignition key to the ON position. Continue to press and hold the button until the trip meter displays 00000.

#### **A** CAUTION

#### Used engine oil

- Used engine oil contains potentially harmful contaminants which may cause skin. disorders such as inflammation or skin cancer, so care should be taken to avoid prolonged and repeated contact. To remove used engine oil from your skin, wash thoroughly with soap and water.
- Dispose of used oil and filters only in a safe and acceptable manner. Do not dispose of used oil and filters in household trash, in sewers or onto the ground. Call your Lexus dealer, service station or auto parts store for information concerning recycling or disposal.
- Do not leave used engine oil within the reach of children.



#### ∧ NOTICE

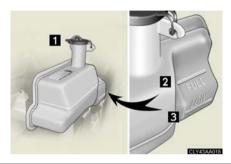
■ To prevent serious engine damage:

Check the oil level on regular basis.

- When replacing the engine oil
  - Be careful not to spill engine oil on the vehicle components.
  - Avoid overfilling, or the engine could be damaged.
  - Check the oil level on the dipstick every time you refill the vehicle.
  - Be sure the engine oil filler cap is properly retightened.

#### Engine coolant

The coolant level is satisfactory if it is between the FULL and LOW lines on the reservoir when the engine is cold.



- Reservoir cap
- 2 Full
- 3 low

If the level is on or below the LOW line, add coolant up to the FULL line

#### ■ If the coolant level drops within a short time after replenishing

Visually check the radiator, hoses, engine coolant filler cap, radiator cap, drain cock and water pump.

If you cannot find a leak, have your Lexus dealer pressure test the cap and check for leaks in the cooling system.

#### ■ Coolant selection

Only use Toyota Super Long Life Coolant or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology.

U.S.A.: Toyota Super Long Life Coolant is a mixture of 50% coolant and 50% deionized water. (Enabled: -31°F [-35°C])

Canada: Toyota Super Long Life Coolant is a mixture of 55% coolant and 45% deionized water. (Enabled: -44°F [-42°C])

For more details about engine coolant, contact your Lexus dealer.



### **A** CAUTION

### ■ When the engine is hot

Do not remove the radiator cap.

The cooling system may be under pressure and may spray hot coolant if the cap is removed, causing burns or other injuries.

# **↑** NOTICE

#### ■ When adding engine coolant

Coolant is neither plain water nor straight antifreeze. The correct mixture of water and antifreeze must be used to provide proper lubrication, corrosion protection and cooling. Be sure to read the antifreeze or coolant label.

#### If you spill coolant

Be sure to wash it off with water to prevent it damaging parts or paint.

#### Radiator and condenser

Check the radiator and condenser and clear any foreign objects. If either of the above parts are extremely dirty or you are not sure of their condition, have your vehicle checked by your Lexus dealer.

# **A** CAUTION

### ■ When the engine is hot

Do not touch the radiator or condenser, as they may be hot and you may be burned.

#### Brake fluid

### ■ Checking fluid level



The brake fluid level should be between the MAX and MIN lines on the tank.

Make sure to check the fluid type and prepare the necessary items.

### Adding fluid

Fluid type FMVSS No.116 DOT 3 or SAE J1703 brake fluid

Items Clean funnel

#### ■ Brake fluid can absorb moisture from the air

Excess moisture in the fluid can cause a dangerous loss of braking efficiency. Use only newly opened brake fluid.

# **A** CAUTION

#### ■ When filling the reservoir

Take care because brake fluid can harm your hands or eyes and damage painted surfaces.

If fluid gets in your eyes, flush your eyes with clean water immediately.

If you still experience discomfort, see a doctor.

# **⚠** NOTICE

#### ■ If the fluid level is low or high

It is normal for the brake fluid level to go down slightly as the brake pads wear or when the fluid level in the accumulator is high.

If the reservoir needs frequent refilling, it may indicate a serious problem.

#### Power steering fluid

#### Fluid level

The fluid level should be within the appropriate range.



- 1 Full (when cold)
- Add fluid (when cold)
- 3 Full (when hot)
- 4 Add fluid (when hot)

Hot: Vehicle has been driven around 50 mph (80 km/h) for 20 minutes, or slightly longer in frigid temperatures. (Fluid temperature, 140°F - 175°F [60°C - 80°C])

Cold: Engine has not been run for about five hours. (Room temperature, 50°F - 85°F [10°C - 30°C])

### Checking the fluid level

Make sure to check the fluid type and prepare the necessary items.

Fluid type	Automatic transmission fluid DEXRON $^{\mathbb{R}}$ II or III
ltems	Rag or paper, Clean funnel (only for adding fluid)

- STEP 1 Clean all dirt off the reservoir.
- STEP 2 Remove the cap by turning it counterclockwise.
- STEP 3 Wipe the dipstick clean.
- STEP 4 Reinstall and remove the reservoir cap again.
- STEP 5 Check the fluid level.



# **A** CAUTION

#### ■ When checking the reservoir

Take care, as the reservoir may be hot.

#### ♠ NOTICE

### ■ When adding fluid

Avoid overfilling, or the power steering may be damaged.

#### ■ After replacing the reservoir cap

Check the steering box case, vane pump and hose connections for leaks or damage.

### **Battery**

Check the battery as follows.

### Battery exterior

Make sure that the battery terminals are not corroded and that there are no loose connections, cracks, or loose clamps.

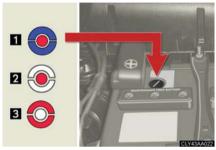


- 11 Terminals
- 2 Hold-down clamp

### ■ Checking battery condition

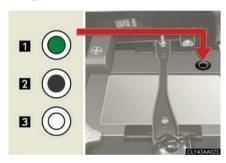
Check the battery condition using the indicator color.

▶ Type A



- Blue: Good condition
- White: Charging is necessary. Have the vehicle inspected by your Lexus dealer.
- Red: Not working properly, have the battery checked by your Lexus dealer.

► Type B



- Green: Good condition
- Dark: Charging is necessary. Have the vehicle inspected by your Lexus dealer.
- Clear or light yellow: Not working properly, have the battery checked by your Lexus dealer.

### ■ Before recharging

When recharging, the battery produces hydrogen gas which is flammable and explosive. Therefore, before recharging:

- If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
- Make sure the power switch on the charger is off when connecting and disconnecting the charger cables to the battery.

#### **A** CAUTION

#### Chemicals in the battery:

A battery contains poisonous and corrosive sulfuric acid and may produce hydrogen gas which is flammable and explosive. To reduce the risk of death or serious injury, take the following precautions while working on or near battery:

- Do not cause sparks by touching the battery terminals with tools.
- Do not smoke or light a match near the battery.
- Avoid contact with eyes, skin and clothes.
- Never inhale or swallow electrolyte.
- Wear protective safety glasses when working near the battery.
- Keep children away from the battery.

#### ■ Where to safety charge the battery

Always charge the battery in an open area. Do not charge the battery in a garage or closed room where there is not sufficient ventilation.

#### ■ How to recharge the battery

Only perform a slow charge (5 A or less). The battery may explode if charged at a quicker rate.

#### Emergency measures regarding electrolyte

- If electrolyte gets in your eyes Flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If possible, continue to apply water with a sponge or cloth while traveling to the nearest medical facility.
- If electrolyte gets on your skin Wash the affected area thoroughly. If you feel pain or burning, get medical attention immediately.
- If electrolyte gets on your clothes It can soak through clothing on to your skin. Immediately take off the clothing and follow the procedure above if necessary.
- If you accidentally swallow electrolyte Drink a large quantity of water or milk. Follow with milk of magnesia, beaten raw egg or vegetable oil. Get emergency medical attention immediately.

# **⚠** NOTICE

### ■ When recharging the battery

Never recharge the battery while the engine is running. Also, be sure all accessories are turned off.

#### Washer fluid



If any washer does not work or the low washer fluid warning light comes on, the washer tank may be empty. Add washer fluid.

# **⚠** NOTICE

### Do not use any fluid other than washer fluid

Do not use soapy water or engine antifreeze instead of washer fluid. Doing so may cause streaking on the vehicle's painted surfaces.

#### ■ Diluting washer fluid

Dilute washer fluid with water as necessary.

Refer to the freezing temperatures listed on the washer fluid tank.

#### 4-3. Do-it-yourself maintenance

#### **Tires**

Replace or rotate tires in accordance with maintenance schedules and tread wear.

Checking tires

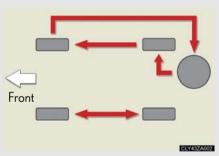


- 1 New tread
- Tread wear indicator
- Worn tread

The location of tread wear indicators is shown by the TWI or  $\Delta$  marks, etc., molded on the sidewall of each tire.

Check spare tire condition and pressure if not rotated.

■ Tire rotation



Rotate the tires in the order shown.

Lexus recommends tire rotation in accordance with the maintenance schedule to equalize tire wear and extend tire life.

■ The tire pressure warning system

Your Lexus is equipped with a tire pressure warning system that uses tire pressure warning valve & transmitters to detect low tire inflation pressure before serious problems arise.  $(\rightarrow P. 366)$ 

### Installing tire pressure warning valve & transmitters

When replacing tires or wheels, tire pressure warning valve & transmitters must also be installed.

When new tire pressure warning valve & transmitters are installed, new tire pressure warning valve & transmitter ID codes must be registered in the tire pressure ECU and tire pressure warning system must be initialized. Have tire pressure warning valve & transmitter ID codes registered by your Lexus dealer. ( $\rightarrow$ P. 307, 308)

#### Initializing the tire pressure warning system

- The tire pressure warning system must be initialized in the following circumstances:
  - When changing the tire inflation pressure by changing traveling speed or load weight, etc.
  - When changing the tire size.

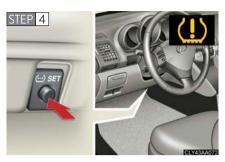
When the tire pressure warning system is initialized, the current tire inflation pressure is set as the pressure benchmark.

- How to initialize the tire pressure warning system
- STEP 1 Park the vehicle in safe place and turn off the engine.
- STEP 2 Adjust the tire inflation pressure to the specified cold tire inflation pressure level.  $(\rightarrow P. 398)$

Make sure to adjust the tire inflation pressure to the specified cold tire inflation pressure level. The tire pressure warning system will operate based on this pressure level.

STEP 3 Turn the ignition key to the ON position.

Make sure to adjust the tire inflation pressure to the specified level. The tire pressure warning system will operate based on this pressure level.



Recording tire inflation pressure settings

Press the tire pressure warning reset switch until the tire pressure warning light flashes 3 times. The initial setting will complete within a few minutes.

Keep the ignition key in the ON position until initialization is complete.

# Registering and selecting ID codes

#### Registering ID codes

2 sets of tire pressure warning valve & transmitter ID codes can be registered. Once a second set of tires is registered at "2nd", you can switch between tire set settings simply by pressing the tire pressure warning select switch.

There are 2 settings:

"MAIN" position: The ID code of the tire pressure warning valve & transmitter on the tires originally installed on the vehicle is registered.

"2nd" position: The code is not registered. When you replace a new set of tires, purchase tire pressure warning valve & transmitters from your Lexus dealer and have the new ID code registered by your Lexus dealer.

### ■ Selecting ID codes

When replacing tires, make sure to select the ID code set that matches the new tire set. If the tire pressure select switch is set to the wrong tire setting, the system will not work properly. After about 1 hour, the tire pressure warning light blinks (comes on after blinking for 1 minute) to indicate a system malfunction.



# Switching ID codes

Push the tire pressure warning select switch to select MAIN or 2nd ID codes.

#### ■ When to replace your vehicle's tires

Tires should be replaced if:

- You have tire damage such as cuts, splits, cracks deep enough to expose the fabric or bulges indicating internal damage
- A tire goes flat repeatedly or cannot be properly repaired due to the size or location of a cut or other damage

If you are not sure, consult with your Lexus dealer.

#### ■ Tire life

Any tire over 6 years old must be checked by a qualified technician even if they have seldom or never been used or damage is not obvious.

#### ■ If the tread wears down below 0.16 in. (4 mm) on snow tires

The effectiveness of snow tires is lost.

#### ■ Maximum load of tire

Check that the maximum load of the replaced tire is greater than 1/2 of the Gross Axle Weight Ratings (GAWR) of either the front axle or the rear axle, whichever is greater.

As for the maximum load of the tire, see the load limit at maximum cold tire inflation pressure mentioned on the sidewall of the tire, and as for the Gross Axle Weight Ratings (GAWR), see the Certification Label.  $(\rightarrow P. 313, 404)$ .

#### ■ Tire types

#### 1 Summer tires

Summer tires are high-speed performance tires best suited to highway driving under dry conditions. Since summer tires do not have the same traction performance as snow tires, summer tires are inadequate for driving on snow-covered or icy roads. For driving on snow-covered roads or icy roads, the use of snow tires is recommended. When installing snow tires, be sure to replace all four tires.

#### 2 All season tires

All season tires are designed to provide better traction in snow and to be adequate for driving in most winter conditions, as well as for use year round. All season tires, however, do not have adequate traction performance compared with snow tires in heavy or loose snow. Also, all season tires fall short in acceleration and handling performance compared with summer tires in highway driving.

#### 3 Snow tires

For driving on snow-covered roads or icy roads, we recommend using snow tires. If you need snow tires, select tires of the same size, construction and load capacity as the originally installed tires. Since your vehicle has radial tires as original equipment, make sure your snow tires also have radial construction. Do not install studded tires without first checking local regulations for possible restriction. Snow tires should be installed on all wheels.  $(\rightarrow P.157)$ 

### ■ Initializing the tire pressure warning system

Initialize the tires with the tire inflation pressure adjusted to the specified level.

#### ■ When the initialization of the tire pressure warning system has failed

Initialization can be completed in a few minutes. However, in the following cases, the settings have not been recorded and the system will not operate properly. If repeated attempts to record tire inflation pressure settings are unsuccessful, have the vehicle inspected by your Lexus dealer.

- When operating the tire pressure warning reset switch, the warning light does not flash. (The tires cannot be initialized while the vehicle is moving.)
- After driving for approximately 20 minutes since the initialization has been completed, the warning light stays on after flashing for a minute.

#### ■ Routine tire inflation pressure checks

The tire pressure warning system does not replace routine tire inflation pressure checks. Make sure to check tire inflation pressure as part of your routine of daily vehicle checks.

#### ■ Tire pressure warning system certification

► For vehicles sold in the U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### NOTICE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the
  receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

#### FCC WARNING:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For vehicles sold in Canada

#### NOTE:

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

### **CAUTION**

#### When inspecting or replacing tires

Observe the following precautions to prevent accidents.

Failure to do so may cause damage to parts of the drive train, as well as dangerous handling characteristics, which may lead to fatal or injury accidents.

- Do not mix tires of different makes, models, tread patterns or tread wear.
- Do not use tire sizes other than those recommended by Lexus.
- Do not mix radial, bias-belted, or bias-ply tires.
- Do not mix summer, all season and winter tires.

#### ■ When initializing the tire pressure warning system

Do not push the tire pressure warning reset switch without first adjusting the tire inflation pressure to the specified level. Otherwise, the tire pressure warning light may not come on even if the tire inflation pressure is low, or it may come on when the tire not inflation pressure is actually normal.



#### ♠ NOTICE

# ■ Repairing or replacing tires, wheels and tire pressure warning valve & transmit-

- When removing the tires from the wheels, be careful not to damage the system's tire pressure warning valve & transmitter. Contact your Lexus dealer for details regarding the removal and installation procedures.
- When replacing tires, make sure also to replace the tire pressure warning valve and transmitter.

### Do not use puncture sealant sprays to repair flats

Puncture sealant sprays may damage tire pressure warning valve & transmitter.

#### Driving on rough roads

Take particular care when driving on roads with loose surfaces or potholes.

These conditions may cause losses in tire inflation pressure, reducing the cushioning ability of the tires. In addition driving on rough roads may cause damage to the tires themselves, as well as the vehicle's wheels and body.

### If tire inflation pressures become low while driving

Do not continue driving, or your tires and/or wheels may be ruined.

# 4-3. Do-it-yourself maintenance

# Tire inflation pressure

# ■ Tire inflation pressure

The recommended cold tire inflation pressure and tire size is displayed on the tire and loading information label.  $(\rightarrow P. 398)$ 





# Inspection and adjustment procedure



- 1 Tire valve
- 2 Tire pressure gauge

- STEP 1 Remove the tire valve cap.
- STEP 2 Press the tip of the tire pressure gauge onto the tire valve.
- STEP 3 Read the pressure using the graduations of the gauge.
- STEP 4 If the tire inflation pressure is not within the recommended levels, adjust inflate the tire.

If you add too much air, press the center of the valve to lower.

- After completing the tire inflation pressure measurement and adjustment, apply soapy water to the valve and check for leakage.
- STEP 6 Reinstall the tire valve cap.

### ■ Tire inflation pressure check interval

You should check tire inflation pressure every two weeks, or at least once a month. Do not forget to check the spare.

#### ■ Effects of incorrect tire inflation pressure

Driving with incorrect tire inflation pressure may result in the following:

- Reduced fuel efficiency
- Reduced driving comfort and tire life
- Reduced safety
- Damage to the drive train

If a tire needs frequent refilling, have it checked by your Lexus dealer.

#### ■ Instructions for checking tire inflation pressure

When checking tire inflation pressure, observe the following:

- Check only when the tires are cold.
  If your vehicle has been parked for at least 3 hours and has not been driven for more than 1 mile or 1.5 km, you will get an accurate cold tire inflation pressure reading.
- Always use a tire pressure gauge.
   The appearance of the tire can be misleading. In addition, tire inflation pressures that are even just a few pounds off can degrade ride and handling.
- Do not bleed or reduce tire inflation pressure after driving. It is normal for the tire inflation pressure to be higher after driving.
- Never exceed the vehicle capacity weight.
   Passengers and luggage weight should be placed so that the vehicle is balanced.

#### **A** CAUTION

#### Proper inflation is critical to save tire performance

Keep your tires properly inflated.

Otherwise, the following conditions may occur and result in an accident causing death or serious injury.

- Excessive wear
- Uneven wear
- Poor handling
- Possibility of blowouts resulting from overheated tires
- Poor sealing of the tire bead
- Wheel deformation and/or tire separation
- A greater possibility of tire damage from road hazards



#### ∧ NOTICE

#### ■ When inspecting and adjusting tire inflation pressure

Be sure to reinstall the tire valve caps.

Without the valve caps, dirt or moisture could get into the valve and cause air leakage, which could result in an accident. If the caps have been lost, replace them as soon as possible.

If a wheel is bent, cracked or heavily corroded, it should be replaced. Otherwise, the tire may separate from the wheel or cause loss of handling control.

#### ■ Wheel selection

When replacing wheels, care should be taken to ensure that they are equivalent to those removed in load capacity, diameter, rim width, and offset.

Replacement wheels are available at your Lexus dealer.

Lexus does not recommend using:

- · Wheels of different sizes or types
- Used wheels
- · Bent wheels that have been straightened

#### Aluminum wheel precautions

- Use only Lexus wheel nuts and wrenches designed for use with your aluminum wheels.
- When rotating, repairing or changing your tires, check that the wheel nuts are still tight after driving 1000 miles (1600 km).
- Be careful not to damage the aluminum wheels when using tire chains.
- Use only Lexus genuine balance weights or equivalent and a plastic or rubber hammer when balancing your wheels.

#### ■ When replacing wheels

The wheels of your Lexus are equipped with sensors that allow the tire pressure warning system sensors to provide advanced warning in the event of a loss in tire inflation pressure. Whenever wheels are replaced, the tire pressure warning valve & transmitter must be switched over from the old wheels.  $(\rightarrow P. 307)$ 

### **CAUTION**

#### ■ When replacing wheels

- Do not use wheels that are a different size from those recommended in the Owner's Manual, as this may result in loss of handling control.
- Never use an inner tube in a leaking wheel which is designed for a tubeless tire. Doing so may result in an accident, causing serious injury or death.

#### NOTICE

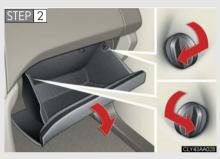
#### ■ Replacing tire pressure warning valve & transmitters

- Because tire repair or replacement may affect the tire pressure warning valve & transmitters, make sure to have tires serviced by your Lexus dealer or other gualified service shop. In addition, make sure to purchase your tire pressure warning valve & transmitters at your Lexus dealer.
- Ensure that only Genuine Lexus wheels are used on your vehicle. Tire pressure warning valve & transmitters may not work properly with non-genuine wheels.

The air conditioning filter must be cleaned or changed regularly to maintain air conditioning efficiency.

#### Removal method

STEP 1 Turn the ignition key to the LOCK position.

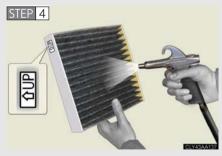


Open the glove box.

Remove the 2 pins installed on the upper part of the glove box and lower the glove box.



Remove the filter case.

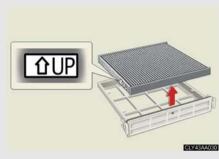


If the filter is dirty, clean by blowing compressed air through the filter from the downward side.

Hold the air gun 2 in. (5 cm) from the filter and blow for approximately 2 minutes at 72 psi  $(500 \text{ kPa}, 5.0 \text{ kgf/cm}^2)$  or bar).

If it is not available, have the filter cleaned by your Lexus dealer.

# Replacement method



Remove the air conditioning filter from the filter case and replace it with a new one.

The TUP marks shown on the filter and the filter case should be pointing up.

#### ■ Checking interval

Inspect, clean and replace the air conditioning filter according to the maintenance schedule. In dusty areas or areas with heavy traffic flow, more frequent cleaning or early replacement may be required. (For scheduled maintenance information, please refer to the "Warranty and Service Guide/Owner's Manual Supplement/ Scheduled Maintenance".)

# ■ If air flow from the vents decreases dramatically

The filter may be clogged. Check the filter and replace if necessary.

### **↑** NOTICE

#### ■ To prevent damage to the system

- When using the air conditioning system, make sure that a filter is always installed.
- When cleaning the filter, do not clean the filter with water.

# Wireless remote control battery

#### Replace the battery with a new one if it is discharged.

- You will need the following items:
  - Small Phillips-head screwdriver
  - Lithium battery (CR2016)
- Replacing the battery



Remove the screw and cover.

Push the cover in the arrow direction.



Remove the module.





Open the case cover and remove the depleted battery.

Insert a new battery with the + terminal facing up.

#### ■ If the battery is discharged

The following symptoms may occur.

- The wireless remote control will not function properly.
- The operational range is reduced.

#### ■ Use a CR2016 lithium battery

- Batteries can be purchased at your Lexus dealer, jewelers, or camera stores.
- Replace only with the same or equivalent type recommended by a Lexus dealer.
- Dispose of used batteries according to the local laws.



#### ■ Removed battery and other parts

Keep away from children.

These parts are small and if swallowed by a child they can cause choking.

### **⚠** NOTICE

#### ■ For normal operation after replacing the battery

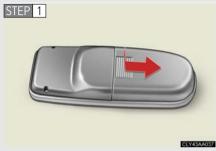
Observe the following precautions to prevent accidents.

- Always work with dry hands.
   Moisture may cause the battery to rust.
- Do not touch or move any other components inside the remote control.
- Do not bend either of the battery terminals.

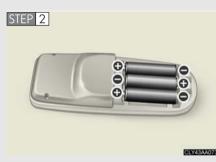
# Rear seat entertainment system controller

#### Replace the batteries with new them if they are discharged.

- Necessary item for replacing:
  - 3 AA batteries
- Replacing the batteries



Remove the cover



Remove the depleted batteries and install the new them

#### If the batteries are discharged

The following symptoms may occur.

- The rear seat entertainment system control will not function properly.
- The operational range is reduced.

#### ■ When using 3 AA batteries

- Batteries can be purchased at your Lexus dealer, electric appliance shop, or camera stores.
- Replace only with the same or equivalent type recommended by a Lexus dealer.
- Dispose of used batteries according to the local laws.



#### Removed battery and other parts

Keep away from children.

These parts are small and if swallowed by a child they can cause choking.



#### **↑** NOTICE

#### For normal operation after replacing the battery

Observe the following precautions to prevent accidents.

- Always work with dry hands. Moisture may cause the battery to rust.
- Do not touch or move any other components inside the remote control.
- Do not bend either of the battery terminals.

4

If any of the electrical components do not operate, a fuse may have blown. If this happens, check and replace the fuses as necessary.

STEP 1 Turn the ignition key to the LOCK position.

STEP 2 Open the fuse box cover.

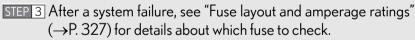


► Engine compartment Push the tabs in and lift the lid off



► Driver's side instrument panel

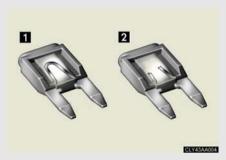
Remove the lid.





Remove the fuse with the pullout tool.

### STEP 5 Check if the fuse has blown.



- ► Type A
- 1 Normal fuse
- Blown fuse

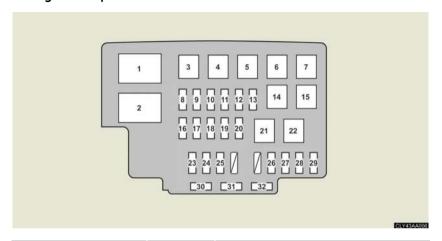
Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

- ► Type B and C
- 1 Type B
- 2 Type C
- Normal fuse
- 4 Blown fuse

Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

### Fuse layout and amperage ratings

#### ■ Engine compartment



Fuse		Ampere	Circuit
	AIRSUS*1	60	Electronically modulated air suspension
1	INP-J/B* <sup>2</sup>	100	HEATER, TAIL, PANEL, FR FOG, CIG, RADIO NO. 2, ECU-ACC, PWR OUTLET NO. 1, GAUGE NO. 1, ECU-IG NO.1, FR WIP, RR WIP, WASHER, SEAT HTR, ECU-IG NO. 2, P/SEAT, PWR, TI&TE, RR DOOR LH, RR DOOR RH, MPX-B, AM1, DOOR NO.2, STOP, OBD, FUEL OPN, AIRSUS (7.5 A), S/ROOF, FR DEF, RR FOG

<sup>\*1:</sup> With electronically modulated air suspension

<sup>\*2:</sup> Without electronically modulated air suspension

	Fuse	Ampere	Circuit
2	ALT	140	INP-J/B, AIRSUS (60 A), ABS NO. 1, ABS NO. 2, RDI FAN, RR DEF, HEATER, PBD, H-LP CLN/MSB, H-LP CLN, POWER OUTLET NO. 2, TOWING, TAIL, PANEL, FR FOG, CIG, RADIO NO. 2, ECU-ACC, PWR OUTLET NO. 1, GAUGE NO. 1, ECU-IG NO. 1, FR WIP, RR WIP, WASHER, HEATER, SEAT HTR, ECU-IG NO. 2, P/SEAT, PWR, CRT, TI&TE, RR DOOR LH, RR DOOR RH, MPX-B, AM1, DOOR NO. 2, STOP, OBD, FUEL OPN, AIRSUS (7.5 A), S/ROOF, FR DEF, RR FOG
3	PBD	30	Power back door
4	H-LP CLN/MSB*1	30	Headlight cleaner
4	H-LP CLN* <sup>2</sup>	30	Headlight cleaner
5	ABS NO.1	30	Anti-lock brake system, vehicle stability control system, traction control system, brake assist system
6	RR DEF	40	Rear window defogger
7	HEATER	50	Air conditioning system, rear window defogger
8	DRL/WIP-S	7.5	Daytime running light system
9	H-LP L LWR	15	Left-hand headlight (low beam)
10	H-LP L UPR	15	Left-hand headlight (high beam)
11	H-LP R UPR	15	Right-hand headlight (high beam)

<sup>\*&</sup>lt;sup>1</sup>: With electronically modulated air suspension

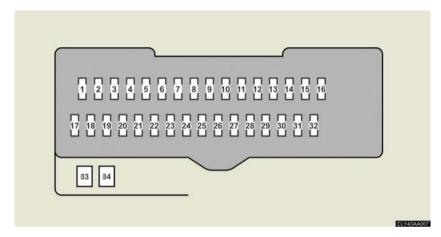
 $<sup>^{\</sup>star 2}\!\!:$  Without electronically modulated air suspension

	Fuse	Ampere	Circuit
12	TOWING	30	Trailer lights
13	CRT	7.5	Audio system
14	ABS NO. 2	50	Anti-lock brake system, vehicle stability control system, traction control system, brake assist system
15	RDIFAN	50	Electric cooling fans
16	HAZ	15	Turn signal lights
17	A/F	25	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
18	ALT-S	7.5	Charging system
19	ETCS	10	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
20	HORN	10	Horns
21	MAIN	40	Daytime running light system, left- hand headlight, right-hand headlight, H-LP R LWR, H-LP R UPR, H-LP L UPR, H-LP L LWR, DRL
22	AM2	30	Starting system, GAUGE NO. 2, IGN, IG2
23	RADIO NO.1	15	Audio system, navigation system

	Fuse	Ampere	Circuit
24	ECU-B	7.5	Power window, multiplex communication system, gauge and meters, instrument cluster lights, instrument panel lights, air conditioning system, garage door opener, illuminated entry system, wireless remote control system, power back door, driving position memory system, navigation system display, moon roof, tilt and telescopic steering, power seats, outside rear view mirror, windshield wipers
25	DOME	7.5	Gauge and meters, personal lights, vanity lights, door courtesy lights, inside door handle lights, ignition switch light, foot well lighting, scuff lighting, luggage compartment light, interior light
26	AMP	30	Audio system
27	DOOR NO.1	25	Multiplex communication system
28	INJ	10	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
29	EFI NO.1	25	Multiport fuel injection system/ sequential multiport fuel injection sys- tem, EFI NO. 2

	Fuse	Ampere	Circuit
30	H-LP R LWR	15	Right-hand headlight (low beam)
31	PWR OUTLET NO. 2	20	Power outlet
32	EFI NO. 2	10	Multiport fuel injection system/ sequential multiport fuel injection sys- tem

### ■ Driver's side instrument panel



	Fuse	Ampere	Circuit
1	RR DOOR RH	20	Rear right side power window
2	RR DOOR LH	20	Rear left side power window
3	FUEL OPN	7.5	Fuel filler door opener
4	FRFOG	15	Front fog lights
5	OBD	7.5	On-board diagnosis system
6	FR DEF	25	Windshield wiper de-icer, MIR HTR
7	STOP	10	Tail lights, high mounted stoplight, rear light failure warning light, anti-lock brake system, vehicle stability control system, traction control system, brake assist system, electronically modulated air suspension, shift lock control system, multiport fuel injection system/sequential multiport fuel injection system
8	TI&TE	30	Tilt and telescopic steering
9	MPX-B	7.5	Security system

	Fuse	Ampere	Circuit
10	AM1	7.5	Starter system
11	RR FOG	7.5	No circuit
12	AIR SUS	7.5	Electronically modulated air suspension
13	DOOR NO. 2	25	Multiplex communication system
14	S/ROOF	30	Moon roof
15	TAIL	10	Front fog lights, instrument cluster lights, instrument panel lights, front side marker lights, tail lights, licence plate lights, towing converter
16	PANEL	7.5	Glove box light, instrument cluster lights, instrument panel lights, console box light, audio system, power outlet, garage door opener switch, electronically controlled automatic transmission system, headlight cleaner, electronically modulated air suspension, seat heaters, steering wheel audio switches, power back door

	Fuse	Ampere	Circuit
17	ECU-IG NO.1	7.5	Power rear view mirror control, moon roof, multiplex communication system, navigation system display, shift lock control system, multiplex communication system (power door lock system, wireless remote control system), driving position memory system, vehicle stability control system, traction control system, windshield wipers, electronically controlled automatic transmission, seat heaters, power seats, tilt and telescopic steering, power back door, electronically modulated air suspension
18	ECU-IG NO. 2	10	Automatic headlight leveling system, vehicle stability control system, dynamic laser cruise control, headlight cleaner, adaptive front-lighting system
19	HEATER	7.5	Electric cooling fans, air conditioning system, rear window defogger, igni- tion switch, windshield wiper de-icer
20	WASHER	20	Windshield washer
21	SEAT HTR	20	Seat heaters
22	GAUGE NO.1	7.5	Instrument cluster lights, instrument panel lights, emergency flashers, seat belt, power outlet, rear light failure warning light, multiport fuel injection system/sequential multiport fuel injection system, back-up lights
23	FR WIP	30	Windshield wipers

	Fuse	Ampere	Circuit
24	RR WIP	15	Rear window wiper
25	IG2	7.5	Multiport fuel injection system/ sequential multiport fuel injection sys- tem
26	IGN	10	SRS airbag system, multiport fuel injection system/sequential multiport fuel injection system, front passenger occupant classification system, stop lights
27	GAUGE NO. 2	7.5	Gauge and meters
28	ECU-ACC	7.5	Navigation system display, power rear view mirror control, shift lock control system, multiplex communication sys- tem
29	CIG	15	Cigarette lighter, power outlet
30	PWR OUTLET NO.1	15	Power outlet
31	RADIO NO. 2	7.5	Instrument cluster lights, instrument panel lights, navigation system, audio system
32	MIR HTR	10	Outside rear view mirror defogger
33	P/SEAT	30	Power seats
34	PWR	30	Power window, multiplex communica- tion system (power door lock system, wireless remote control system), out- side rear view mirror

#### ■ After a fuse is replaced

- If the lights do not turn on even after the fuse has been replaced, a bulb may need replacement.  $(\rightarrow P. 338)$
- If the replaced fuse blows again, have the vehicle inspected by your Lexus dealer.

#### ■ If there is an overload in the circuits

The fuses are designed to blow before the entire wiring harness is damaged.

### **A** CAUTION

#### ■ To prevent system breakdowns and vehicle fire

Observe the following precautions.

Failing to do so may cause damage, and possibly a fire or injury.

- Never use a fuse of a higher amperage rating than indicated, or use any other object in place of a fuse.
- Always use a genuine Lexus fuse or equivalent.
   Never replace a fuse with a wire, even as a temporary fix.
   This can cause extensive damage or even fire.
- Do not modify fuses or the fuse box.

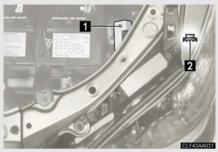
#### **№** NOTICE

#### ■ Before replacing fuses

Have the cause of electrical overload determined and repaired by your Lexus dealer.

## Headlight aim (vehicles with discharge headlights)

### Vertical movement adjusting screw and bolt

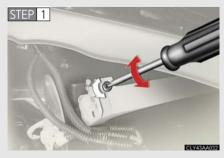


- Adjustment screw
- Adjustment bolt

### ■ Before checking the headlight aim

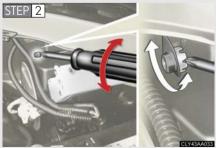
- STEP 1 Make sure the vehicle has a full tank of gas and the area around the headlight is not deformed.
- STEP 2 Park the vehicle on level ground.
- STEP 3 Sit in the driver's seat.
- STEP 4 Bounce the vehicle several times.

### Adjusting the headlight aim



Turn the screw in either direction using a Phillips-head screwdriver.

Remember the turning direction and the number of turns in mind.



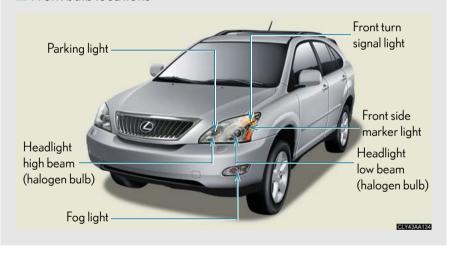
Turn the bolt the same number of turns and in the same direction as step 1 using a Phillipshead screwdriver.

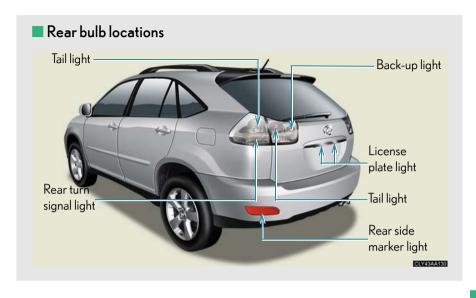
If the error is over the value specified above, take the vehicle to your Lexus dealer to adjust the headlight aim.

### Light bulbs

You may replace the following bulbs yourself. For more information about replacing other light bulbs, contact your Lexus dealer.

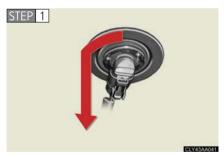
- Prepare a replacement light bulb.
  Check the wattage of the light bulb being replaced. (→P. 400)
- Remove the engine compartment cover.
  - →P. 293
- Turn the power back door main switch OFF.
  - $\rightarrow$ P.13
- Front bulb locations



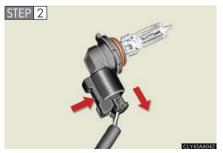


### Replacing light bulbs

### ■ Headlight high beam (halogen bulb)

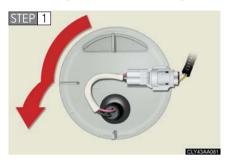


Turn the bulb base counterclockwise.

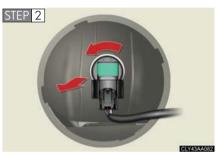


Unplug the connector while depressing the lock release.

### ■ Headlight low beam (halogen bulb)



Turn the cover counterclockwise.



Turn the bulb base counterclockwise.

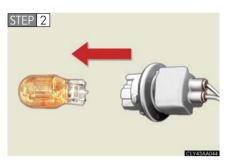


Unplug the connector while depressing the lock release.

### Front turn signal lights

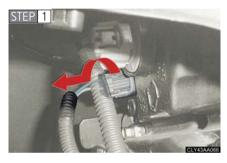


Turn the bulb base counterclockwise.

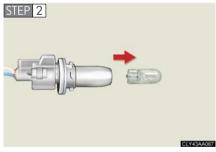


Remove the light bulb.

### Front side marker lights



Turn the bulb base counterclockwise.



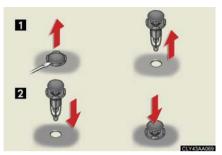
Remove the light bulb.

### Rear side marker lights



Right-hand side only:

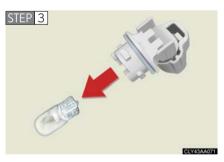
Remove the bolts using a Phillipshead screwdriver and remove the clips.



- Removing clip
- 2 Installing clip



Turn the bulb base counterclockwise.

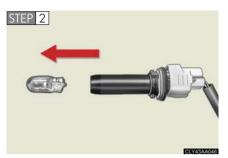


Remove the light bulb.





Turn the bulb base counterclockwise.



Remove the light bulb.

### Fog lights



There are access holes for the fog lights.



Turn the bulb base counterclockwise.



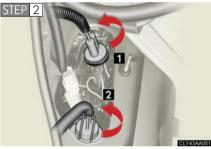
Unplug the connector while depressing the lock release.

### Rear turn signal and tail lights



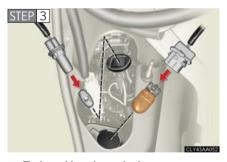
Remove the access hole cover.

Use a flathead screwdriver which is wrapped with a cloth.



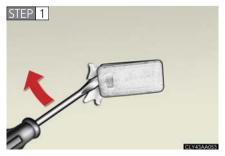
1 Tail light

■ Rear turn signal light Turn the bulb base counterclockwise.

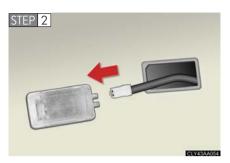


Remove the light bulb.

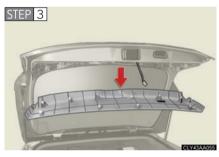
### ■ Tail and back-up lights



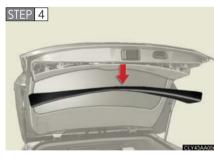
Open the back door and remove the luggage compartment light unit.



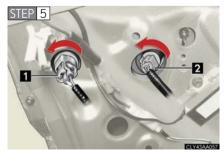
Pull out the connector.



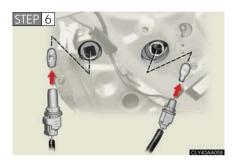
Remove the upper trim board.



Remove the lower trim board.

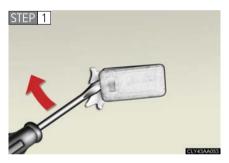


- 1 Tail light
- Back-up light Turn the bulb base counterclockwise.

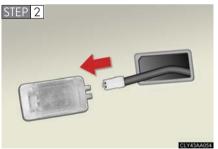


Remove the light bulb.

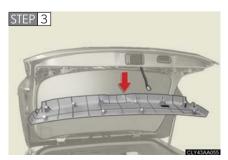
### License plate lights



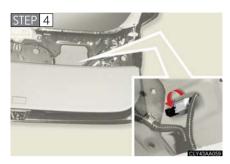
Open the back door and remove the luggage compartment light unit.



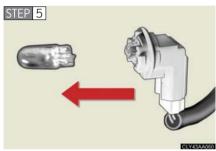
Pull out the connector.



Remove the upper trim board.



Turn the bulb base counterclockwise.



Remove the light bulb.

#### ■ Bulbs other than the above

If any of the bulbs listed below has burnt out, have your Lexus dealer replace it.

- Headlight low beams (discharge bulbs)
- Stop lights
- High mounted stoplight

#### ■ Condensation build-up on the inside of the lens

Contact your Lexus dealer for more information in the following situations. Temporary condensation build-up on the inside of the headlight lens does not indicate a malfunction.

- Large drops of water are built up on the inside of the lens.
- Water has built up inside the headlight.

#### ■ Discharge headlights

If voltage to the discharge bulbs is insufficient, the bulbs may not come on, or may go out temporarily. The discharge bulbs will come on when normal power is restored.

#### ■ LED stop lights

The stop lights and high mounted stoplight consist of a number of LEDs. If any of the LEDs burn out, take your vehicle to your Lexus dealer to have the light replaced. If two or more LEDs in a stop light burn out, your vehicle may not conform to local laws (SAE).

### **A** CAUTION

#### ■ Replacing light bulbs

- Turn off the headlights. Do not attempt to replace the bulb immediately after turning off the headlights.
  - The bulbs become very hot and may cause burns.
- Do not touch the glass portion of the light bulb with bare hands. Hold the bulb by the plastic or metal portion.
  - If the bulb is scratched or dropped it may blow out or crack.
- Fully install light bulbs and any parts used to secure them.
   Failing to do so may result in heat damage, fire, or water entering the headlight unit. This may damage the headlights or cause condensation to build up on the lens.
- Do not attempt to take apart or repair the low beam discharge headlight bulbs, connectors, power supply circuits, or related components.
   Doing so could result in electric shock and serious injury or death.

#### ■ Discharge headlights

- Contact your Lexus dealer before replacing discharge headlights (including light bulbs).
- Do not touch the high-intensity discharge headlight's high voltage socket when the headlights are turned on.
  - An extremely high voltage of  $20000\ V$  will be discharged and could result in serious injury or death by electric shock.

#### ■ To prevent damage or fire

Make sure bulbs are fully seated and locked.